

IN THE CLAIMS

Please add new claims 1- 32 as follows. An indication of the new claims is provided in Appendix A.

1. (new) A method for evaluating a plurality of candidate catalysts, the method comprising  
providing a plurality of candidate catalysts having differing compositions in a parallel reactor, the reactor comprising one or more temperature sensors in thermal communication with each of the plurality of candidate catalysts,  
simultaneously contacting the plurality of candidate catalysts with one or more reactants under reaction conditions to catalyze at least one reaction with each of the plurality of candidate catalysts,  
detecting temperature changes due to the heat of reaction of the catalyzed reactions using the temperature sensors, and  
determining the relative efficacy of the plurality of candidate catalysts based on the detected temperature changes.

2. (new) The method of claim 1 wherein the plurality of candidate catalysts are provided at a plurality of sites on a common support.

3. (new) The method of claim 1 wherein each of the plurality of candidate catalysts are tagged or labeled to identify particular catalyst candidates, the method further comprising  
collecting candidate catalysts showing catalytic activity, and  
analyzing the tag or label of the collected candidate catalysts to determine the catalyst candidates having catalytic activity.

4. (new) The method of claim 2 wherein the support is a plate or sheet having a surface comprising the candidate-catalyst-containing sites.

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5. (new) The method of claim 2 wherein the support is a plate having a plurality of wells as candidate-catalyst-containing sites.

6. (new) The method of claim 2 wherein the support is a monolithic support comprising a plurality of reaction channels as candidate-catalyst-containing sites.

7. (new) The method of claim 2 wherein each of the plurality of candidate catalysts is in its own site on the support.

8. (new) The method of claim 2 wherein the temperature sensors are located in the vicinity of the candidate catalysts.

9. (new) The method of claim 1 wherein the plurality of catalyst candidates are chemical conversion catalysts.

10. (new) The method of claim 1 wherein the plurality of catalyst candidates are hydrocarbon conversion catalysts.

11. (new) The method of claim 1 wherein the plurality of catalyst candidates are inorganic catalysts.

12. (new) The method of claim 1 wherein the plurality of catalyst candidates are metals or metal oxides.

13. (new) The method of claim 1 wherein the plurality of catalyst candidates are transition metals or transition metal oxides.

14. (new) The method of claim 1 wherein the plurality of catalyst candidates are zeolites.

15. (new) The method of claim 1 wherein the plurality of catalyst candidates are metallocenes.

16. (new) The method of claim 1 wherein the plurality of catalyst candidates are enzymes.

17. (new) The method of claim 1 wherein the plurality of catalyst candidates are cells.

18. (new) The method of claim 1 wherein the plurality of catalyst candidates are supported catalysts.

19. (new) The method of claim 1 wherein the plurality of candidate catalysts are simultaneously contacted with the one or more reactants in a plurality of reactor channels formed in a monolithic support.

20. (new) The method of claim 1 wherein the one or more reactants are in the gas phase.

21. (new) The method of claim 1 wherein the one or more reactants are in the liquid phase.

22. (new) The method of claim 1 wherein the plurality of candidate catalysts comprises fifteen candidate catalysts.

23. (new) The method of claim 1 wherein the plurality of candidate catalysts comprises twenty-four candidate catalysts.

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24. (new) The method of claim 1 wherein the plurality of candidate catalysts are contacted with the one or more reactants under reaction conditions that include a temperature greater than 100 °C, and additionally, or alternatively, a pressure of greater than 1 bar.

25. (new) The method of claim 1 wherein the plurality of candidate catalysts are formed by calcining catalyst precursors at different temperatures.

26. (new) The method of claim 1 wherein the plurality of candidate catalysts are provided at a plurality of sites on a common support, each of the plurality of candidate catalysts being in its own site on the support.

27. (new) The method of claim 1 wherein the plurality of candidate catalysts are simultaneously contacted with the one or more reactants in parallel reactor comprising a plurality of reaction channels, each of the plurality of candidate catalysts being in its own reaction channel.

28. (new) The method of claim 27 wherein the parallel reactor comprises a plurality of reaction channels in a monolithic support.

29. (new) The method of claim 27 wherein the parallel reactor is a flow reactor and the one or more reactants flow through each of the plurality of reaction channels.

30. (new) The method of claim 27 wherein the parallel reactor is a batch reactor pressurized with the one or more reactants.

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31. (new) A method for evaluating a plurality of candidate catalysts, the method comprising

flowing a reactant-containing stream through each of a plurality of reaction channels in a parallel flow reactor, each of the plurality of reaction channels comprising an inlet for receiving a reactant-containing stream, an outlet for discharging a product-containing stream, a catalyst-candidate, and one or more temperature sensors in thermal communication with the catalyst candidate, the plurality of candidate catalysts having different compositions as compared between the plurality of reaction channels,

simultaneously contacting the plurality of candidate catalysts with one or more reactants under reaction conditions to catalyze at least one reaction in each of the plurality of reaction channels,

detecting temperature changes due to the heat of reaction of the catalyzed reactions using the temperature sensors, and

determining the relative efficacy of the plurality of candidate catalysts based on the detected temperature changes.

32. (new) A method for evaluating a plurality of candidate catalysts, the method comprising

providing a plurality of candidate catalysts having differing compositions at a plurality of sites on a common support,

simultaneously contacting the plurality of candidate catalysts with one or more reactants in a parallel reactor under reaction conditions to catalyze at least one reaction with each of the plurality of candidate catalysts, the reactor comprising one or more temperature sensors in thermal communication with each of the plurality of candidate catalysts,

detecting temperature changes due to the heat of reaction of the catalyzed reactions using the temperature sensors, and

determining the relative efficacy of the plurality of candidate catalysts based on the detected temperature changes.